BRIEF COMMUNICATIONS

Providing library services to a remote non-traditional program for health career students: the Kellogg experience*

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INTRODUCTION

Trends in health care, such as increases in the number of nurse practitioners and the number of patients in managed care systems, have fueled a need for more primary care providers. Health care educational institutions have responded to this need in a variety of ways, including experiments in multidisciplinary education, many sponsored by the Kellogg Foundation, in which medical and nursing students are trained together.

In 1992, East Tennessee State University (ETSU), along with other institutions across the nation, received a six-million-dollar grant from the Kellogg Foundation to link multidisciplinary education with strong involvement of the surrounding community [1]. The Division of Health Sciences at ETSU is dedicated to producing primary care health professionals, and multidisciplinary education of several groups of health career students in a community-based curriculum is part of one program designed to meet this goal. This innovative program was funded by the Kellogg Foundation's Community Partnerships in Health Professions Education initiative. ETSU's proposal was highly unusual in that it incorporated students from three different disciplines. The proposal also focused on encouraging health care students to practice in rural areas. The ETSU Health Sciences Division, composed of the James H. Quillen College of Medicine, the College of Nursing, and the College of Allied and Public Health, hypothesized that training the students in rural settings would entice them to practice in rural areas after they completed their education.

Many challenges were involved in the development of a curriculum for a unified classroom where recent high school graduates could study and work alongside students who have bachelor of science degrees in the premedical sciences. Zungolo described the rewards of and barriers to the success of such a program for nursing and medical students, outlining differences in the structure of traditional medical and nursing programs and in the two sets of matriculants [2]. The Kellogg courses were designed with content relevant to students in all three disciplines. For the more specialized classes standard to each college, Kellogg students attended classes on the ETSU campus a few days each week.

Teaching sites for the newly developed multidisciplinary curriculum were established in two small towns in Tennessee with populations of fewer than 10,000 each: Mountain City (Johnson County) and Rogersville (Hawkins County). It takes more than ninety minutes to get from campus (in Johnson City) to Mountain City, and seventy minutes to get from campus to Rogersville. The towns chosen as teaching sites were in medically underserved areas; there was no accessible hospital in all of Johnson County. Both teaching and clinical practice facilities were established, and faculty members were assigned to the area as both instructors and practitioners. Students volunteering for the Interdisciplinary Rural Primary Care Track, as the Kellogg program is called, began visiting these small communities in northeast Tennessee to learn professional skills in multidisciplinary classrooms.

Student volunteers come from all programs in the Health Sciences Division. Approximately ten volunteers a year from each college are allowed into the Kellogg program. These students learn in the same classroom and see each other throughout their education. There is some rotation among the public health and allied health students because their training often lasts only for two years, while medical and nursing

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schools require at least four years. Kellogg students learn the same material as their traditionally taught peers, but they are exposed to patients immediately and consistently, receiving clinical experience well before other students in their colleges. In addition, Kellogg students work with a patient's family and community to prevent recurrence of medical conditions and improve long-term outcomes.

PROVIDING INFORMATION RESOURCES

Because they are removed from campus and traditional sources of information, Kellogg students are thrown into an environment where they make real differences in the lives of individual patients and in the well-being of the community. In addition to attending classes, Kellogg students work on special research projects, with objectives such as reducing the number of births to teenage mothers or reducing the rate of spousal abuse. In order to complete these tasks effectively, students need access to basic science and clinical information.

Two ETSU libraries established a partnership and stepped in to deliver the necessary information. The Sherrod Library, ETSU's principal library, serves the faculty and students of the colleges of nursing and allied and public health. The Medical Library serves primarily medical and biomedical graduate students and clinical and research faculty. The two libraries had worked together before on an integrated online library system, and librarians representing both libraries often provided joint bibliographic instruction to classes in the health professions.

Representatives of the two libraries designed a slate of services by using input from an informal survey of Kellogg sites in other parts of the country. A program of requirements was then created. It listed information resources needed on site, information resources needed on campus, and services needed to ensure that students received the requisite support. The program of requirements was used in negotiations for a contract to provide information services with the head of Rural and Community Health (a Kellogg program department).

Equipment

To provide information remotely, librarians involved in the program relied upon technology. Kellogg furnished computers and basic office equipment including telefacsimile (fax) machines for each location used for document delivery and online search requests. A four-disc CD-ROM tower was also procured for each site to provide access to online databases.

Databases

Project librarians selected CD-ROM databases and recommended equipment specifications. Librarians provide training in the use of the databases at least once a semester, and are always available for telephone consultation. Kellogg students have access to the National Library of Medicine's MEDLINE and Healthline databases, the CINAHL nursing index, and Meyler's *Side Effects of Drugs.*

Document delivery

Kellogg program students have access to both libraries for photocopy requests. A student worker, funded by Kellogg, visits both libraries regularly to ensure that remote students and faculty get the materials they request from these collections. Photocopy requests faxed to the medical library are filled by the student worker. Articles are mailed to or picked up by the Kellogg students.

Books

Aware of the difficulty of managing a collection in a remote location, librarians decided to limit on-site collections to books. Librarians with knowledge of the key reference works and standard textbooks in the health disciplines chose a small core collection of fewer than 100 books for each site. The core collections are housed and circulated from an office area at each site, which provides a measure of collection security. The collection is not cataloged by the campus libraries. Administrative staff at each location determine charge and discharge, inventory, and security procedures.

Training and reference

The typical bibliographic instruction session for the Kellogg program includes an overview of library services for the students, a demonstration of MEDLINE and CINAHL, and a detailed discussion of information quality and quantity. Kellogg students learn how to limit their retrieval to the most important clinical journals and to selected types of articles. At the end of the session, they are expected to understand a rough definition of current versus dated literature, methods of using the literature to maintain current awareness, and ways to obtain information more recent than that indexed in the databases.

It quickly became clear that access to a librarian was the most important of the services provided. Librarians are the campus experts on both CD-ROM hardware configuration and troubleshooting. Kellogg personnel have called on librarians for all problems related to not only the CD-ROM workstations, but also the other computers. In addition to these point-of-need services, librarians provide bibliographic instruction and typical reference services by telephone and fax.

Evaluation

Librarians conducted a standard evaluation each time a library instruction or database training course was

taught. The evaluations covered content and librarian performance. In addition, taking advantage of the Kellogg program's informal classroom atmosphere, librarians asked students whether their needs were being met. In light of what they learned during these relaxed conversations, project librarians reconsidered the types of databases needed by the students. Many of the students and faculty were interested in gaining access to Grateful Med so they could search medical databases from their homes as well as from CD-ROM stations at the rural teaching sites or on campus. Librarians subsequently incorporated Grateful Med classes at the remote sites in response to the student requests.

In the informal classroom setting, Kellogg personnel have expressed delight with the extensive support they receive from ETSU libraries. They have sought out the librarians who serve the remote locations when they are on campus. One faculty member based in Mountain City said, "We get better service [from you] than [from] our colleagues on campus!" The students also seem to be more enthusiastic users of current literature than are their traditionally taught peers. Librarians at both campuses have noted anecdotally that Kellogg students are more savvy and discriminating users of the library than are their counterparts in traditional programs, and are more likely to teach their peers how to use databases.

Evolving needs

Students and faculty working at remote sites need the same level of services as do their peers on the main campus. Since the original model was created to provide library services, cheaper technology and the Internet have evolved and changed the provision of library service on campus. The Kellogg program bought several laptop computers, which are available for checkout by faculty and students at each site. The availability of laptops created a demand for remote access to information and for modems to connect to Grateful Med. The Medical Library, the Internet provider for the College of Medicine, provides Kellogg program personnel with access to e-mail and the Internet at both remote locations and on campus through a dial-in service. Librarians regularly teach how to use other means of accessing MEDLINE, such as Grateful Med and Physicians Online, even though CD-ROM versions of MEDLINE and other databases are available at the Kellogg sites.

Librarians have proposed that Kellogg remote locations buy Internet connections from local providers and link to the libraries' forthcoming campuswide database network via telnet. Internet connections will also provide access to the World Wide Web and allow patrons to use e-mail without incurring long-distance telephone charges. In the future, interlibrary loans may be provided through Loansome Doc to circumvent the need for students to fax requests for articles. Negotiations for a contract to implement such new or improved services will be conducted.

DISCUSSION

Does teaching students in a "mixed" classroom far from the traditional support system work? At East Tennessee State University, this approach is not just working but exceeding expectations. The program has not been in place long enough to know the extent to which Kellogg students succeed in terms of class rank or many other benchmarks. However, medical students scored slightly higher than did their traditional peers on Step I of the national medical boards, which must be taken by all students finishing their second year of medical school. Grade point averages for Kellogg students are approximately the same as those for students in the conventional instructional curricula.

One of the most intriguing aspects of the program is the social effect of the mixed classrooms. Librarians generally believe they can "spot" the career paths of patrons—"That one's a doctor; that's a graduate student; he's an undergraduate; she's a nursing student; she's a medical student." In the Kellogg program, librarians are not very successful in this informal categorization. The nursing undergraduates behave in the aggressively inquisitive manner typically ascribed to medical students. Medical students' awareness of the role nurses and other health professionals play in taking care of the whole patient, not just the illness, seems to be heightened [3]. Multidisciplinary classrooms thus may be especially good proving grounds for students who will spend their future in managed care systems.

Another interesting effect of the Kellogg program noted by librarians is increased interest in literature about research on community programs that are effective in addressing public health problems. Because they are so closely involved in the community and assist in the treatment of individual patients, Kellogg students seek ways to address problems at the community level. A Kellogg student who has encountered a pregnant and married fourteen-year-old girl asks what can be done to lower the rate of teen pregnancies and how improved prenatal care can be provided to those who do become pregnant. The community benefits from having teams of practitioners and students who keep up with current medical knowledge. Students from all of the disciplines exhibit an interest in public health issues.

The Kellogg initiative in the instruction of health career students in a single classroom as part of a rural community has been successful so far at ETSU. Part of the reason for this success is the flexible way in which ETSU libraries came together to provide access to information resources. Neither health education nor in-

formation resources are static. Just as health educators experiment with curricula, librarians must continue to seek ways to bring the most advanced—and sometimes the most familiar—information resources and technologies to faculty and students practicing and learning in these communities.

CONCLUSION

Establishing a multidisciplinary program is an intricate task. Challenges range from the smallest concerns, such as differences in the academic calendars of various programs, to the largest, such as how to teach the same material to both allied health students just out of high school and medical students with doctorates in engineering. Adding to this complex mix are the challenges particular to distance education. With cooperation and flexibility, two distinct library systems came together to meet the information needs of ETSU's unique Kellogg program. This support has helped the university, health care students, and two rural communities reap the benefits of a bold experiment.

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First-year medical students' information needs and resource selection: responses to a clinical scenario

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INTRODUCTION

The clinical encounter is an increasingly significant component of the first years of the undergraduate medical curriculum. A student's clinical experience has traditionally begun in the third year of the curriculum. Recently, however, a number of medical schools have initiated programs that provide students with clinical experience in each of their four years. Among the initiatives aimed at increasing the number of graduates intending to pursue primary care careers, for example, has been the placement of students in primary care practices at regular intervals beginning in the first year of the curriculum. While the clinical encounter is understood to be a significant educational experience, little is known about the information needs and information seeking behaviors of students in response to clinical problems.

Recent studies have investigated the nature of physicians' information needs and how these needs are managed. Covell, Uman, and Manning [1] developed a methodology that placed the researchers in ambulatory care practices for half-day site visits during which physicians indicated any information need relative to each patient encounter. Results of this study suggest that clinicians articulate an average of two information needs for every three patients seen, but that only 30% of questions are resolved at the time of the patient visit.

Gorman and Helfand [2] extended the findings of Covell, Uman, and Manning by investigating physicians' motivations for the pursuit of each information need. Two to five days after the formulation of questions, follow-up interviews found that approximately 30% of questions had been pursued, corroborating the findings of Covell, Uman, and Manning. When consideration was given to the motivating factors behind each question, however, Gorman and Helfand found much higher rates of information seeking among certain categories of questions. Physicians pursued 56% of questions they perceived as most likely to have a definitive answer and 50% of questions they rated as most urgent for the care of a patient. It is interesting